

Radiation

Safety Minutes of Radiation Safety Committee of April 22, 2008

Committee

Subject: Progress on the Engineering and Development of Operator-less Controlled Access using Optical Turnstiles and other components for NSRL With Post Meeting Updates

Present: D. Beavis, R. Karol, C. Pearson, J. Reich, J. Sandberg, A. Etkin, W. MacKay, F. Pilat, G. Mahler, A. Rusek, P. Ingrassia, L. Ahrens, P. Ciriigliaro, K. Yip, and Y. Makdisi

Progress on the development of the Operator-less Controlled Access system was presented to the committee.

The committee was provided with a series of materials (mainly by J. Reich) before the meeting and they can be found at reference 1. He noted that in the safety life cycle from IEC61508 that the development of the system was now at step three and waiting information on hazards and risk analysis from the committee so that he could continue.

He noted that he needed a set of performance measures/tests in which to finish the design and test the system to. The Chair said he would setup a sub-committee and provide him that information in a timely manner. A sub-committee met on May 1 and provided J. Reich with the required information (see Reference 1).

J. Reich noted that it would be helpful to know as soon as possible if the committee will require full redundancy in the system or allow some single components. The committee felt that this system did not require full redundancy but the Chair would check with RCD management that they had the same evaluation of the requirements. The Chair met with C. Schaefer, H. Kahnhauser, and D. Ryan. It was agreed that the system did not require redundancy.

The proposed system has two optical turnstiles forming a single person zone. Inside the zone there will be two RFID readers to ensure that the person has a RFID tag and a light curtain to ensure that the optical turnstiles have not missed a person. The light curtain has a SIL of 4. The optical turnstiles do not have a SIL rating and will need to have documented testing conducted to check the reliability. The initial test setup was demonstrated to several members³ of the committee on June 2, 2008. This test setup is intended to establish a rough reliability number for the turnstiles as well as examine issues of the integrated system. After some initial testing problems the system turnstiles exceeded the reliability requirement provided by the committee as reported⁴ by A. Rusek.

The initial goal was to install the system into NSRL by Sept. 10 for testing during the NSRL run in the fall. Difficulty with the RFID in the system prevented this from occurring. A new RFID system was chosen to try to eliminate the issue of picking up RFIDs that are outside the turnstiles. A. Rusek and C. Pearson^{5,6} have proposed a revised access scheme where the RFID readers are past the second turnstile to eliminate picking up RFIDs worn by other people near the entrance.

It is expected that a review will be scheduled in early December to keep this project on track for the next NSRL run.

References

1. [NRS� materials / Turnstile](#)
2. [Minutes of the RSC subcommittee of May 1, 2008.](#)
3. [E-mail from D. Beavis, June 2, 2008.](#)
4. [Memo from A. Rusek to D. Beavis, "Test #1 of the Operator-less Controlled Access System for NSRL, August 26, 2008.](#)
5. [Memo from C. Pearson to D. Beavis, "NSRL Operator-free Access System Proposal", revised Nov. 6, 2008.](#)
6. [C. Pearson new proposed layout, Nov. 6, 2008.](#)

CC: Present
RSC
RSC Minutes file
RSC NSRL file